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The RAI Studio of Musical Phonology: "XXth Century lute shop"

by Matteo Milani - U.S.O. Project, 2010

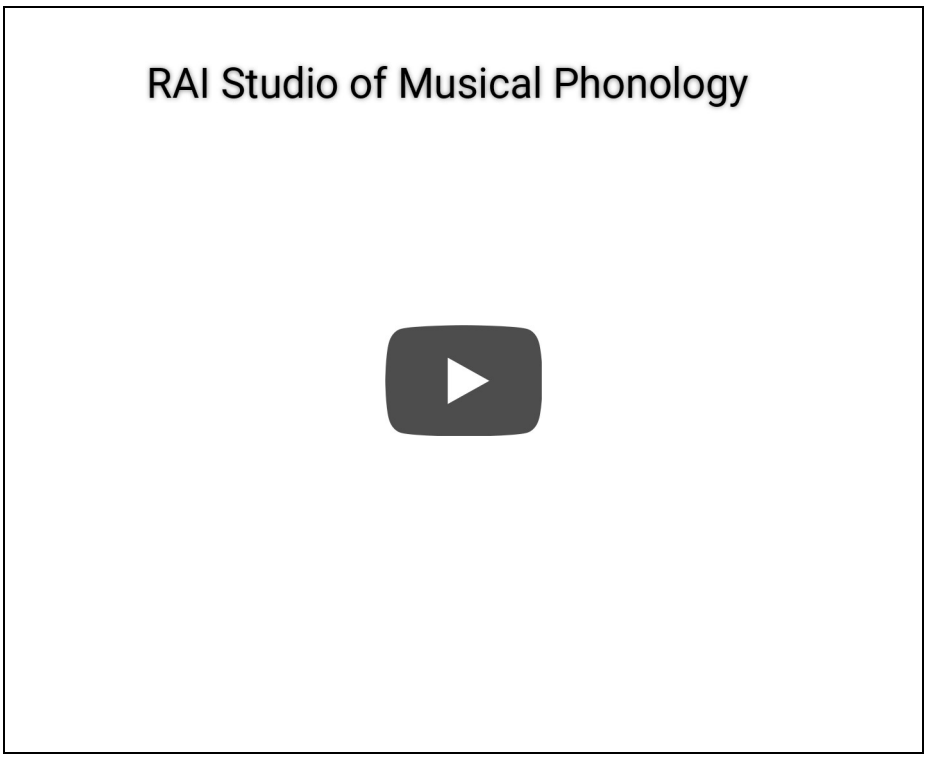
"The RAI Studio of Musical Phonology is the outcome of the matching between music and the possible new means of analyzing and processing that sound has" - ***Luciano Berio***

After more than fifty years since the birth of analog magnetic recording, on the 17th of September 2008 at the **Castello Sforzesco's Museum of Music Instruments** in Milan, took place the inauguration of a new space dedicated to **Rai Studio of Musical Phonology** - "musical instrument of the 20th Century, extension of human thought". Such an event was made possible thanks to the International Music Festival MITO, in collaboration with the Civic Museum of Musical Instruments and RAI.

Maddalena Novati, RAI Radiophonic Production's musical consultant and responsible for the Phonology archive - thanks to the decisive contribution from Doctor Massimo Ferrario, Director of RAI TV Production Centre (Milan) - was able to transfer all the Studio equipment from Rai Turin to Milan headquarters. This is the very first plan of recovery, storing and refurbishing electrophonic musical instruments.

Maddalena Novati does in fact describe this niche of the Museum as the "**20th Century lute shop**". The idea of conceiving this space as a sole instrument in its whole, is moving: there are so many experiences enclosed in those devices that it is actually still possible to perceive the residual energy that characterized the entire handcraft process of sound-writing. The Milan Institute of Musical Phonology, designed by physicist **Alfredo Lietti**, was created in June **1955** at the RAI headquarter in Corso Sempione 27, by **Luciano Berio** and **Bruno Maderna**. During that year, Milan was on the verge of becoming a pivotal point in the international electroacoustic music post-war scene, through a new expressive language, which was a synthesis of the concrete and electronic experiences happening in Europe at the **Studio für Elektronische Musik** (WDR) in Cologne and at the **Groupe de Recherches Musicales** (GRM) in Paris. Among the electronic music experimental productions at the Studio of Phonology, we must mention works such as *Visage* by Luciano Berio, *Notturno* by Bruno

Maderna, *Fontana Mix* by John Cage and *Omaggio ad Emilio Vedova*, the only entirely electronic work created by Luigi Nono.



"...in the opaque Milan of the '50s, Berio and Maderna found a hostile, apathetic environment, while opening the Phonology Studio. In a completely different situation from the newborn Studio in Cologne, the two masters, built their ideas on the strong basis of their French experiences, through a different technical method which was free and imaginative. Creatively, it has been the most relevant experience in the whole Old continent…" - ***Giacomo Manzoni***

I always close my eyes and try to jump backwards in time, inside that Studio, imagining the noises, dialogues and sounds coming out the loudspeakers: living and breathing the miracles happening in that far age. We now have the possibility to touch by hand what I always used to see only in photographs and videos, how many protagonists of that time have lived (eminent musicians like Luigi Nono, Giacomo Manzoni, Aldo Clementi, Henri Pousseur, John Cage). In fact, in **room XXXVI** of the Museum of Music instruments, thanks to a glass structure designed by the architect Michele De Lucchi, the back of the eight famous frames containing the circuits are open for everyone to enjoy, allowing spectators to get the heart of the analog technologies with a 360° vision. Based on original pictures and videos from the time, the atmosphere of those years has been recreated.

Further information about the sounds that characterized the second half of last century, are available to the public of devotees and researchers, thanks to four computer stations with multimedia applications, and a digital library with photographs, footage, sound examples and scores (cured by the **LIM** Laboratory of the Università Statale di Milano).

The Studio, a patrimony fundamental to understand electroacoustic music writing, in the beginning

has been experienced by composers as a mean to emancipate themselves from traditional instruments, with its 9 oscillators, the noise generators, different modulators, filters and the **Tempophon** (a device with rotating heads that allowed to vary the duration of the playback of a previously recorded sound, while maintaining the original pitch).

Those were the times of technicians in white lab coats, yet one particular person changed this professional's profile: **Marino Zuccheri**. Born on the 28th of February 1923, he was hired by EIAR in 1942; in the following year he left his job because of the war, but was re-hired a few years later by the new-founded **RAI**.

"... I like remembering Marino in his Phonology Studio, master among masters, master of sound among masters of music, because sound for him did not have any secrets, since he was trained in auditoriums while working for the Radio together with the most famous directors of the time. He would always recall how he begun working in Phonology by chance, but it is certain that it wasn't because of chance that he continued during the years, considering he's been the only holder of the Studio from when it was created (1955) until it closed down (1983)." - ***Giovanni Belletti****, "Marino Zuccheri in Fonologia",* ***2008***

He did not have any obligation to give advice, contributions or suggestions, yet musicians would follow his instructions on how to realize musical compositions: without him, much of last century's music would have never been born.

[Marino Zuccheri and Luigi Nono - courtesy of Fondazione Archivio LN]

"... All the protagonists of Neue Musik passed through the Studio, and it is fair to say this: many of them were in Milan through scholarships, and had to present a final composition at the end of their term, and sometimes the stay had not been long enough to master the nine oscillators' secrets, so the great Marino Zuccheri would put together an acceptable composition with a few touches, thus many

*of electronic music "incunabula" are his works, and not of those who signed them." - **Umberto Eco, La Repubblica, 29 ottobre 2008***

That has been an amazing adventure for many years, until 1983 to be precise, year of his retirement (Zuccheri then passed away in Milan, 10th of March 2005).

*"Marino Zuccheri's demise was a great loss, not only for what he meant for Contemporary Music, but moreover for what he still could have done: he was to be involved in an important project by RAI, in order to catalog tapes (as himself defined the work) that would have given us a fundamental technical, artistic, musical and cultural insight on the history of the Phonology adventure (another of his own definitions), but not to restore the sound itself (which could be done by others when needed), rather to revive the ideas and technical intuitions that made possible the creation of that sound: Marino (along with the composers) was the only one that could help us!" - **Giovanni Belletti**, "Marino Zuccheri in Fonologia", **2008***

"[..] Two of the first electronic works in my record collection - Berio's Visage from 1961, and John Cage's Fontana Mix from 1958 - were created there with Zuccheri. Even today, both of these pieces sound impressively vivid and dynamic, and what we should now recognise is that such qualities should be attributed to the technician as much as to the composer.
*[..] Zuccheri appears to fit the profile: Parete 1967, composed for painter Emilio Vedova for the Italian Pavilion at Montreal Expo, 1967, was his only known work. [..] Luigi Nono was his first choice as composer, but Nono's schedule prevented that, so Zuccheri stepped in to assemble a 30 minute continuous work using previously recorded sounds built up from long intersecting tape loops. Zuccheri's modest opinion of himself was that he was no composer. Certainly there's very little sense of form in Parete 1967, but the dramatic contrasts of harsh noise, perhaps sourced from piano strings and struck metal, and shifting, modulating drones suggestive of vocal choruses, have something in common with the ritualistic side of Iannis Xenakis, or the best horror movie soundtracks. To the regret of his label Die Schachtel, who have produced another of their sumptuous limited edition vinyl releases here, Zuccheri died before seeing the publication of his only record." - **David Toop, The Wire, 2008***

After the Studio closed down, the equipments were disassembled and exhibited in Venice for a short period, on the occasion of the temporary exhibition called ***Nuova Atlantide***, organized in 1986 by the **Biennale** (with the collaboration of **Roberto Doati** and **Alvise Vidolin**) and in Milan for ***I piaceri della città - Iconografia delle sensazioni urbane*** in 2001, where *Il risveglio di una città* was displayed through music thanks to the futurist composition of the same name by Luigi Russolo, and to *Ritratto di città*, the first electroacoustic composition of the Fifties (voice and tapes by Luciano Berio and Bruno Maderna, lyrics by Roberto Leydi) created in order to convince the direction of RAI to create the Studio.

At the end of the Eighties, there still was no awareness of what the Phonology Studio had meant historically, at the point that all the documentations had been deposited (packed and cataloged) in a storage room at the RAI Museo della Radio in **Turin**, together with all sorts of disused equipments

such as video-cameras, tape recorders, record players, microphones, with no plans to be restored or rebuilt.

Thanks to Maddalena Novati's interest, in 1996 the Studio devices were displayed in Turin's Music Salon and in 2003 they were brought back to RAI in Milan and located in a room on the **fifth floor** which is adjacent to the one where the Phonology Studio originally was. On June 20, 2008 they were officially transferred to the Castello Sforzesco.

It was a great pleasure for me to interview Maddalena Novati to talk about what the unique experience of the Milan Institute of Musical Phonology was and meant, and to understand what consequences and developments this process of recovery could lead to.

Matteo Milani: Maddalena Novati, why in your opinion the Studio became a myth?

Maddalena Novati: In 1955, to own 9 oscillators tuned on different frequencies, as opposed to the single one that was in Cologne, was like having a "whole orchestra" at your disposal, that could generate many sounds simultaneously like in a chord. This way, you already had a handful, a palette of sounds that killed production times. Human ear was the only judge which decided whether a sound was good or not, and after several attempts and mistakes, interesting tapes would be recorded and stored and this process would continue until a result was achieved. Berio would broadcast on radio each new composition from other Studios around Europe in order to spread the repertoire. The 11 TV episodes of *C'è Musica e Musica* (1972) on the history and ways of making music, sound fascinating with explanations by Luciano (Berio, n.d.a.). He was a great teacher on top of being a great composer, a person that could communicate and bring music to large audiences.

Berio developed an intense activity as a teacher in the United States and Europe, offering courses of composition in Tanglewood (1960 and '62), in Dartington Summer School (1961 and '62) in Mills College in California (1962 and '63), in Darmstadt, Cologne, Harvard University and, from 1965 to '72, in Juilliard School of Music in New York. From 1974 to '79 he collaborated with IRCAM in Paris. Berio's "Un ricordo al futuro - Lezioni americane" published by Einaudi is a beautiful book, which collects the lectures on aesthetics he gave in the US.

MM: When and how did Phonology's decadence period began?

MN: After the Sixties, at the beginning of the Seventies, radio is not anymore the core of research (not being an experimental mean anymore). Computers came up, and research centers moved elsewhere: large calculators are owned by universities and musicians depend on the physics and science departments. The computing machines had to function day and night, and only when physicists would leave their workplaces, musicians could take their place at night in order to perform calculations for their compositions. The radio was not involved anymore, as the broadcasting media did not yet use computers and their respective courses were different. Due to the lack of updates to its equipments and technology, the Phonology Studio was less and less attended by composers. Moreover the defection of some big names (Berio moved to the IRCAM of Paris, Luigi Nono to Fribourg, Maderna passed away prematurely in 1973) had an influence on an inevitable decline.

Active Conservation

It's again Maddalena Novati who tells us that today the archives (original master copies) of the Phonology Studio, hold **391** ¼ inch-audio tapes with one or two tracks, as well as one inch tapes with four tracks, plus **232** digital copies from acquisitions (copies of works coming from other studios,

centers for electronic music, recordings or concerts or plays of the main authors and interpreters who frequented the Studio during its active years). Since 1995 the custody of tapes continues to be her primary objective as well as their cataloging and digitalization in cooperation with Casa Ricordi (the oldest and most important Italian editor), together with the central Nastroteca of RAI and Mirage Laboratory of the Gorizia University.
No real decay of the tapes has occurred, thanks to the good quality of the tapes from **BASF**, that were selected instead of other brands like Scotch or Agfa. Survival of the audio documents is possible only by separating them from their physical support, and periodically transferring them to new supports. The second digital transfer at 96 khz/24 bit is currently ongoing at the Centro di Produzione TV and Produzione Radiofonia of Rai Milano, in cooperation with Mirage laboratory.

Restoration of recorded music

by Alvise Vidolin

As for the restoration, the most common task is the elimination of noise of the analog tapes and, according to the tape conditions and the specific nature of the music, there are other interventions to be decided on a case by case basis. As a start, one has to perform an initial search, in order to detect the possible existence of other copies of the same music, as it would then be possible to exploit the best parts from each copy, and with suitable techniques, improve the effectiveness of the cleaning work.
*In many works of electronic music, the original tape contains scratches and joints glued with adhesive tape whose glue loses its adhesive properties after a few years. Therefore it often happens that one has to paste various pieces of tape before copying it on a new support. On some tapes, it happens that there are some detached magnetic fragments, while on others, parts of material or protective film might have melted, and therefore deposited on the sound head thus blocking the progress of the tape. On top of these mechanical problems, there might occur electromagnetic problems or problems due to the type of **equalization** used during recording, and the fact that the oldest tapes could only support a proportionally lesser quantity of magnetization.*

Reconstructing the laboratories

*As I already had the chance to point out, very often the production of electronic music is not linked to a specific instrument like it happens with traditional music, but rather to a whole of equipments commonly called a **system**. Hence the conservation of a single element of a system does not give a full testimony of the modus operandi of a musician in a given period. Without doubt, the most effective solution is reconstructing a lab where one can reproduce all the phases of the production process of a musical work. In Cologne for instance, they reconstructed and brought back into function a lab for electronic music with the same configuration it had in the Fifties. In a similar way, this is what is happening at the Aja museum for the study of Sonology Institute of Utrecht University in the Sixties. In Paris at the Parc de la Villette, they are setting up a large section dedicated to the musical electrophonic instruments, until the experiences of computer music in real time of the Eighties.*

[Vidolin A., "Conservazione e restauro dei beni musicali elettronici", in Le fonti musicali in Italia - Studi

e Ricerche, CIDIM, year 6, pp. 151-168, 1992]

[the italian version of the article is also available @Digimag 55]
[listen: Ricordo di Marino Zuccheri | ITA - via Radio3 Suite]

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